

IN THE CLAIMS

Please amend the claims as follows:

Claims 1 and 2 (Cancelled):

Claim 3 (Currently Amended): An image forming apparatus, comprising:

a plurality of optical systems and a plurality of image carriers, each optical system scanning a surface of a corresponding image carrier with a laser beam in a main scanning direction to form an image of a specific color on the image carrier;

a plurality of first detecting units and a plurality of second detecting units, each first detecting unit being situated at a first position along the main scanning direction of a corresponding laser beam and each second detecting unit situated at a second position along the main scanning direction of the corresponding laser beam, wherein the first detecting unit and the second detecting unit detect the corresponding laser beam;

clock generating units for each laser beam; and

~~a clock frequency adjusting unit that, counts number of clocks of a write clock during a period since a desired one of the first detecting units detects the corresponding laser beam until a desired one of the second detecting unit detects the corresponding laser beam, selects a count of the number of clocks for one laser beam as a reference value, and adjusts using the clock generating units a write clock frequency of each of the laser beams other than the one lased beam so as to coincide with the reference value; and~~

a plurality of third detecting units, each third detecting unit being situated at a third position along the main scanning direction of a corresponding laser beam, wherein the third detecting unit detects the corresponding laser beam, wherein

[[the]] a clock frequency adjusting unit, counts configured (a) to count number of clocks of a write clock during a period ~~since~~ from when any of the first detecting units, the second detecting units, and the third detecting units detects the corresponding laser beam

until any of an adjoining first detecting unit, second detecting unit, and third detecting unit detects the corresponding laser beam, ~~takes to take~~ a count of the number of clocks for one laser beam as a reference value, and ~~adjusts and (c) to adjust~~ a write clock frequency of each of the laser beams other than the one lased beam so as to coincide with the reference value.

Claim 4 (Currently Amended): An image forming apparatus, comprising:

a plurality of optical systems and a plurality of image carriers, each optical system scanning a surface of a corresponding image carrier with a laser beam in a main scanning direction to form an image of a specific color on the image carrier;

a plurality of first detecting units and a plurality of second detecting units, each first detecting unit being situated at a first position along the main scanning direction of a corresponding laser beam and each second detecting unit situated at a second position along the main scanning direction of the corresponding laser beam, wherein the first detecting unit and the second detecting unit detect the corresponding laser beam;

clock generating units for each laser beam

a clock frequency adjusting unit that, counts number of clocks of a write clock during a period ~~since~~ from when a desired one of the first detecting units detects the corresponding laser beam until a desired one of the second detecting unit detects the corresponding laser beam, selects a count of the number of clocks for one laser beam as a reference value, and adjusts using the clock generating untis a write clock frequency of each of the laser beams other than the one lased beam so as to coincide with the reference value, wherein

the clock frequency adjusting unit includes a phase-locked loop with variable filters and that multiplies a reference clock by a multiple N, and the clock frequency adjusting unit varies the number of filters in the phase-locked loop and the multiple N to adjust the write clock frequency.

Claims 5-11 (Cancelled):

Claim 12 (Currently Amended): A method of correcting timing for generating laser beams in an image forming apparatus, the image forming apparatus having a plurality of optical systems and a plurality of image carriers, each optical system scanning a surface of a corresponding image carrier with a laser beam in a main scanning direction to form an image of a specific color on the image carrier, the method comprising:

detecting the laser beams at least at a first position and a second position, wherein the first position and the second position being on the main scanning direction of each laser beam;

counting a number of clocks of a write clock during a period ~~since~~ from when the laser beam is detected at a desired one of the first position until the laser beam is detected at a desired one of the second position;

selecting a count of the number of clocks for one laser beam, out of the counts of the number of clocks for the laser beams, as a reference value;

adjusting with a unit shared by the optical systems a write clock frequency of each of the laser beams other than the one laser beam so as to coincide with the reference value; and

setting a condition of image forming process after the adjusting of the write clock frequency.

Claims 13-17 (Cancelled):

Claim 18 (Currently Amended): An image forming apparatus, comprising:

a plurality of optical systems configured to form an image of a specific color on each of a plurality of image carriers using laser beams;

a plurality of first detecting units, a plurality of second detecting units, and a plurality of third detecting units configured to detect the laser beams;

clock generating units for each laser beam; and

a clock frequency adjusting unit configured to ~~counts~~ count a number of clocks of a write clock and adjusts using the clock generating units a write clock frequency based on detections performed by the plurality of first detecting units, the plurality of second detecting units, and the plurality of third detecting units, wherein

the clock frequency adjusting unit counts a number of clocks of a write clock and adjusts a write clock frequency.

Claims 19-21 (Cancelled):

Claim 22 (Currently Amended): An image forming method, comprising:

scanning, using a plurality of optical systems and a plurality of image carriers, each optical system scanning a surface of a corresponding image carrier with a laser beam in a main scanning direction to form an image of a specific color on the image carrier;

detecting, using a plurality of first detecting units and a plurality of second detecting units, each first detecting unit being situated at a first position along the main scanning direction of a corresponding laser beam and each second detecting unit situated at a second position along the main scanning direction of the corresponding laser beam, wherein the first detecting unit and the second detecting unit detect the corresponding laser beam; and

adjusting, using a clock frequency adjusting unit shared by the optical systems that counts number of clocks of a write clock during a period ~~since~~ from when a desired one of the first detecting units detects the corresponding laser beam until a desired one of the second detecting unit detects the corresponding laser beam and selects a count of the number of clocks for one laser beam as a reference value, a write clock frequency of each of the laser beams other than the one lased beam so as to coincide with the reference value, wherein

a condition of image forming process is set after the clock frequency adjusting unit performs the adjustment of the write clock frequency.

Claim 23 (Currently Amended): An image forming method, comprising:

scanning, using a plurality of optical systems and a plurality of image carriers, each optical system scanning a surface of a corresponding image carrier with a laser beam in a main scanning direction to form an image of a specific color on the image carrier;

detecting, using a plurality of first detecting units and a plurality of second detecting units, each first detecting unit being situated at a first position along the main scanning direction of a corresponding laser beam and each second detecting unit situated at a second position along the main scanning direction of the corresponding laser beam, wherein the first detecting unit and the second detecting unit detect the corresponding laser beam;

~~adjusting, using a clock frequency adjusting unit shared by the optical systems that counts number of clocks of a write clock during a period since a desired one of the first detecting units detects the corresponding laser beam until a desired one of the second detecting unit detects the corresponding laser beam and selects a count of the number of clocks for one laser beam as a reference value, a write clock frequency of each of the laser beams other than the one lased beam so as to coincide with the reference value; and~~

detecting, using a plurality of third detecting units, each third detecting unit being situated at a third position along the main scanning direction of a corresponding laser beam, wherein the third detecting unit detects the corresponding laser beam, ~~wherein and~~

adjusting, using a [[the]] clock frequency adjusting unit, counts configured

(a) to count a number of clocks of a write clock during a period ~~since~~ from when any of the first detecting units, the second detecting units, and the third detecting units detects the corresponding laser beam until any of an adjoining first detecting unit, second detecting unit, and third detecting unit detects the corresponding laser beam, ~~takes~~

(b) to take a count of the number of clocks for one laser beam as a reference value, and ~~adjusts~~

(c) to adjust a write clock frequency of each of the laser beams other than the one

lased beam so as to coincide with the reference value.

Claim 24 (Currently Amended): An image forming method, comprising:

scanning, using a plurality of optical systems and a plurality of image carriers, each optical system scanning a surface of a corresponding image carrier with a laser beam in a main scanning direction to form an image of a specific color on the image carrier;

detecting, using a plurality of first detecting units and a plurality of second detecting units, each first detecting unit being situated at a first position along the main scanning direction of a corresponding laser beam and each second detecting unit situated at a second position along the main scanning direction of the corresponding laser beam, wherein the first detecting unit and the second detecting unit detect the corresponding laser beam;

adjusting, using a clock frequency adjusting unit shared by the optical systems that counts number of clocks of a write clock during a period ~~since~~ from when a desired one of the first detecting units detects the corresponding laser beam until a desired one of the second detecting unit detects the corresponding laser beam and selects a count of the number of clocks for one laser beam as a reference value, a write clock frequency of each of the laser beams other than the one lased beam so as to coincide with the reference value, wherein

the clock frequency adjusting unit includes a phase-locked loop with variable filters and that multiplies a reference clock by a multiple N, and the clock frequency adjusting unit varies the number of filters in the phase-locked loop and the multiple N to adjust the write clock frequency.

Claim 25 (Previously Presented): An image forming method, comprising:

forming, using a plurality of optical systems, an image of a specific color on each of a plurality of image carriers using laser beams;

detecting, using a plurality of first detecting units and a plurality of second detecting units, the laser beams; and

adjusting, using a clock frequency adjusting unit shared by the optical systems and which is configured to counts a number of clocks of a write clock, a write clock frequency based on detections performed by the plurality of first detecting units and the plurality of second detecting units, wherein

a condition of image forming process is set after the clock frequency adjusting unit performs the adjustment of the write clock frequency.

Claim 26 (Cancelled)

Claim 27 (Currently Amended): An image forming method, comprising:

forming, using a plurality of optical systems, an image of a specific color on each of a plurality of image carriers using laser beams;

detecting, using a plurality of first detecting units, a plurality of second detecting units, and a plurality of third detecting units, the laser beams; and

adjusting, using a clock frequency adjusting unit shared by the optical systems and which is configured to ~~counts~~ count a number of clocks of a write clock, a write clock frequency based on detections performed by the plurality of first detecting units, the plurality of second detecting units, and the plurality of third detecting units, wherein

the clock frequency adjusting unit counts a number of clocks of a write clock and adjusts a write clock frequency.

Claim 28 (Currently Amended): An image forming method, comprising:

forming, using a plurality of optical systems, an image of a specific color on each of a plurality of image carriers using laser beams;

detecting, using a plurality of first detecting units and a plurality of second detecting units, the laser beams; and

adjusting, using a clock frequency adjusting unit shared by the optical systems and which is configured to ~~counts~~ count a number of clocks of a write clock, a write clock

Application No. 10/669,009
Reply to Office Action of March 14, 2006

frequency based on detections performed by the plurality of first detecting units and the plurality of second detecting units, wherein

the clock frequency adjusting unit includes a phase-locked loop with variable filters.